Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Request of Echostar Corporation for	)	RM 107-67
Amendment of the Commission Rules to	)	
Redesignate the 28.6 -29.1 GHz and (Earth-to-space)		
and 18.8-19.3 GHz (space-to-Earth) Band to Allow	)	
Geostationary Fixed-Satellite Service Operations	)	
on a Co-Primary Basis.	)	

To: The Commission

REPLY COMMENTS OF SPACE EXPLORATION TECHNOLOGIES, LLC

Space Exploration Technologies Corporation ("SpaceX") submits these reply comments in opposition to comments filed in support of the petition for rulemaking filed by Echostar Satellite Corporation to reverse the Commission's decision that reserves the 18.8-19.3 GHz and 28.6-29.1 GHz bands for exclusive use on a primary basis for non-geostationary fixed satellite services ("NGSO FSS").[1] This action would be precipitous, ill advised and harmful to the nascent NGSO-FSS industry, and the petition should be dismissed.

One of the primary challenges facing the deployment of NGSO FSS systems has been the high cost of satellite launch. As a developer of launch vehicles intended to significantly reduce the cost and increase the reliability of access to space, as well as a company whose future plans

[1] See Public Notice Report No 2628 (Sept 25, 2003).

may include the participation in the development of an NGSO FSS system, SpaceX has a direct and material interest in this petition. [2]

Determining the proper division of the Ka band among the competing services has been debated before the Commission for over a decade. The Commission initiated the proceeding to address the use of the Ka band in 1992 and did not complete it until June 2000 (notwithstanding the ongoing legal challenges.)[3] One theme that has remained constant is the claim by one service of its superiority over another. First it was Local Multi-Point Distribution Service ("LMDS") and now it is geostationary ("GSO") satellites. However, despite all the grandiose plans and claims of the GSO commenters, the reality is that the only commercial satellite system that is actually utilizing the Ka band today is an NGSO system.[4] Meanwhile, after over *eleven years* since the first GSO license was granted in the Ka Band[5], there still has yet to be a single

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[2] Located in El Segundo, California, the company was founded by CEO Elon Musk in June 2002. SpaceX is the third company founded by Mr. Musk. Previously he co-founded and was the largest shareholder of PayPal, the world's leading electronic payment system, which sold to online auction giant eBay. SpaceX is developing a family of launch vehicles intended to reduce the cost and increase the reliability of access to space by a factor of ten. Falcon, a two stage, liquid-fueled orbital launch vehicle, is the company's first product. SpaceX is privately developing the entire Falcon rocket from the ground up. SpaceX's first launch will take place in early 2004 from the SpaceX launch complex at Vandenberg Air Force Base in California. The Office of the Secretary of Defense, through the Office of Force Transformation (OFT), has purchased the first flight of the Falcon orbital launch vehicle. TacSat-1, the satellite manifested, will be used for enterprise wide data and task communication for tactical and operational commanders through the Department of Defense's SIPNET. At $6 million per launch, Falcon represents a breakthrough in the cost of access to space and is designed to achieve a higher reliability than vehicles currently available. Following this vehicle, SpaceX plans to develop a large three stage rocket using the first and second stages of Falcon as its second and third stages.

[3] IB Docket No. 98-172.

[4] Iridium Satellite LLC operates its NGSO MSS feederlinks in the Ka band.

[5] On July 7, 1992, Norris Satellite Communications, Inc. received Commission authorization for domestic geostationary fixed-satellite service ("GSO/FSS") satellites to operate in the 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) frequency bands.

commercial GSO satellite deployed.[6] The only truism that has applied across all services in the Ka band (and over most of the telecommunications industry in the past five years) is that all of these services are taking longer to deploy than first predicted. However, if the Commission chose to revisit a spectrum allocation plan every time a new service did not deploy as quickly as expected, many valuable services would never have the opportunity to develop. There are many risks in developing a new telecommunications service and regulatory certainty is critical.

Although the GSO commenters reference the difficult financial climate for new satellite ventures, they fail to acknowledge that it affects GSO as well as NGSO satellite systems. The GSO commenters try to make much ado about Teledesic's license withdrawal on June 27, 2003. SES goes as far as to conclude that "[t]he spectrum that has been set aside for NGSO operations has been lying fallow, and customers of Ka-band GSO systems are being denied the benefits that would result from availability of additional spectrum."[7] However, they fail to explain how this is possible given that not a single GSO Ka band system has yet to be deployed. They also fail to acknowledge that more than 40 Ka band GSO licenses that have been returned or revoked for non-compliance with FCC milestones.[8] Without having deployed a single commercial GSO satellite themselves, the GSO commenters summarily disparage and dismiss an entire emerging industry of NGSO systems that have been financed and supported by the most successful aerospace companies in the industry.[9] The Commission cannot and should not extrapolate the

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[6] Similarly, the ambitious plans of the LMDS proponents that fought so hard to secure the NGSO FSS never materialized. It has been almost *thirteen years* since the first LMDS system was authorized and yet today there is still no widespread deployment.

[7] Comments of SES Americom, Inc at 4.

[8] It is also worth noting that it took almost 20 years before DBS providers were able to successfully launch their services.

[9] Hughes fails to acknowledge that that at one time they even had their own slate of NGSO FSS applications.

experience of one uniquely ambitious satellite licensee (Teledesic) to foreclose the opportunity for future NGSO FSS systems. Numerous Ka band NGSO FSS applications remain pending and SpaceX is aware of additional interest by other parties that have not yet filed system applications. Reconsidering this allocation now would be precipitous and ill-advised, particularly given that the Commission released the service rules to facilitate sharing among existing and prospective NGSO FSS licensees in the Ka-Band frequencies only four months ago.[10]

Notwithstanding, the GSO commenters claim they need additional spectrum, yet offer no support as to why the 2000 MHz of primary spectrum, as well as the 500 MHz of the NGSO FSS uplink spectrum on a secondary basis, that the Commission currently provides for use by GSO FSS systems is insufficient. In 1996, the Commission determined that "broadband GSO/FSS applications proposed for this band can be supported within our total designation of 1000 MHz."[11] The GSO commenters offer no justification for reconsidering this decision. As the Commission reiterated in the *Ka Band Non-GSO Service Rules Decision II* adopted in June 2003, "[t]he Commission has worked for more than a decade on various aspects of a band segmentation plan that can accommodate all the terrestrials and satellite communications systems operating in the Ka-band, including those at issue here."[12]

Hughes claims in its comments that this proposal is only about "developing a record on the feasibility of NGSO FSS and GSO FSS sharing of the frequency bands."[13] However, there is already an extensive record on sharing at the FCC and the ITU. The Commission spent four

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[10] IB Docket No. 02-19, released July 9, 2003

[11] First Report and Order, CC Docket No. 92-927, adopted July 17, 1996 at para 58.

[12] *Ka-Band Non-GSO Service Rules II*, FCC 03-137, para. 6 (footnote omitted).

[13] Comments by Hughes Electronics and Hughes Network Systems, October 27, 2003, at 3.

years studying this issue and nothing has happened to change the following conclusion reached by the FCC in its First Report and Order adopted in 1996:

> We reject GE Americom's proposal [to give GSO/FSS operators co-primary status in the 28.6-29.1/18.8-20.3 GHz bands]. While GE Americom's proposal would be appropriate if NGSO and GSO services operated under an international regulatory regime that put both types of systems on equal footing in all FSS bands, in fact NGSO/FSS systems operate under a handicap in the majority of FSS frequency bands outside of the 28.7-29.1 GHz band segment, in which RR 2613 applies and which requires any NGSO/FSS system to cease operations if it causes unacceptable interference into a GSO/FSS system. Under these circumstances, access by GSO/FSS systems to the 28.6-29.1 GHz bands without reciprocal access by NGSO/FSS systems to bands designated for GSO/FSS does not provide appropriate incentives for resolution of interference issues. Therefore, NGSO/FSS systems will be the primary satellite system licensees, in the United States, in the 28.6-29.1 GHz band.[14]

Requiring NGSO FSS systems to coordinate with GSO systems will put a significant burden on the NGSO systems. As the commentors recognize, equivalent power flux-density ("EPFD") limits impose power limits on NGSO systems—not the other way around. Therefore, it comes down to a question of which party is going to bear the technical burden to coordinate and protect the other. Under the current system, GSO systems may operate on a secondary basis in the uplink band. Under the GSO supported proposal this burden would be shifted completely to the NGSO systems, which would contribute significant costs to systems, likely making them unviable. As the Commission recognized in developing the sharing rules for the Ku band, the situation in that band is completely different. Specifically, the Ku band was congested with GSO systems *before* NGSO FSS system proposals emerged. However, in the Ka band, both systems are developing simultaneously and there is sufficient spectrum to support each service in separate bands.

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[14] First Report and Order, CC Docket No. 92-927, adopted July 17, 1996 at para 62.

In conclusion, there is absolutely no basis for reopening the long-fought and carefully considered Ka-band plan and reversing a definitive Commission decision. As Northrup Grumman points out in its comments, "Echostar's ostensibly 'limited' rule change would, if implemented, amount to a complete reversal of the Commision's Ka-band policy, and would effectively preclude most types of non-GSO FSS use of the Ka-band."[15] Allowing the systems to operate on a "co-equal basis, co-primary basis" such as proposed would be tantamount to a complete reversal of Commission policy, rendering the government-wide effort to secure the NGSO FSS rule change at WRC-95 and WRC-97 a complete loss, and virtually ensuring that NGSO FSS systems never deploy. Echostar has simply failed to provide a basis for doing so, and its petition should therefore be denied.

Respectfully submitted,

/s/ Elon Musk

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November 12, 2003

[15] Comments of Northrop Grumman Space Technology and Mission Systems Corporation at iii (filed October 27, 2003).